

## REMARKS

The courtesy of the Examiner in granting the undersigned attorney a personal interview on July 18, 2006 is gratefully acknowledged. During that interview, the language of Claim 1 was discussed in light of the Kasahara et al., Frankel et al., and DVD references. As noted on the Examiner Interview Summary Record, it was agreed that the applicant would discuss the structural consequences of the electrical excitation zone treatment of the surfaces of the beads in this response to the April 10, 2006 Office Action. It was also agreed that if the range of the hardness of the cured form of the adhesive was amended to extend from about Shore A 25 to about Shore A 95, then the rejection based upon the Frankel et al. reference would likely be obviated.

Independent Claim 1 has been amended to define the invention as a composite material including a plurality of beads having electrical excitation zone-treated surfaces. The beads having average diameters between about 1 and about 10 mm. At least 50 percent of the beads are at least 50 percent coated with an adhesive. A cured form of the adhesive has a hardness ranging from about Shore A 20 to about Shore A 95 and is used in a quantity such that it represents between about 20 and about 80 weight percent of the composite material. Independent Claims 32 and 33 respectively define the invention as a construction material and a padding material having the same structure.

The Examiner rejected independent Claims 1, 32, and 33 under 35 U.S.C. 103(a) as being obvious in view of the combined teachings of the Kasahara et al., Frankel et al., and DVD references. These rejections are respectfully traversed.

As discussed during the interview, the Kasahara et al. reference discloses a porous foam plate that is used to stabilize or support the stalk of a plant grown by a hydroponic method. The Kasahara et al. foam plate is formed from a plurality of polystyrene or polyethylene beads that have a particle diameter of about 2 to about 20 mm. The surfaces of such beads are coated with a liquid adhesive such that the beads are bonded to one another. Thus, as noted by the Examiner in the April 10, 2006 Office Action, the Kasahara et al. reference fails to disclose the claimed limitations of (1) the plurality of beads having electrical excitation zone-treated surfaces, and (2) the

cured form of the adhesive having a hardness ranging from about Shore A 20 to about Shore A 95.

The Examiner relies upon the DVD reference to supply the teaching of the plurality of beads having electrical excitation zone-treated surfaces. However, the DVD reference is non-analogous art to the claimed invention and therefore, should not be considered at all when evaluating the patentability of the claimed invention.

As set forth in Section 2141.01(a) of the MPEP, a reference must either be (1) in the field of the applicant's endeavor or (2) reasonably pertinent to the particular problem with which the inventor was concerned. With respect to the latter test, a reference is reasonably pertinent if, even though it may be in a different field from that of the inventor's endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem.

With respect to the first leg of this test for analogous art, the field of the DVD reference (namely, the in-line surface treatment of bulk plastic articles) is quite different from the field of the claimed invention (namely, composite material comprised of polymeric beads and adhesive). In other words, the field of the DVD reference relates to the surface treatment of previously manufactured articles, while the field of the claimed invention relates to the manufacture of the article itself. Thus, the field of the DVD reference is clearly not within the field of the claimed invention.

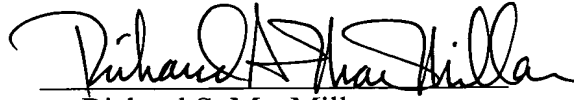
With respect to the second leg of this test for analogous art, the problems addressed by the DVD reference (namely, the difficulties associated with adequately bonding of inks, labels, and the like to the surface of an article) are quite different from the problems addressed by the claimed invention (namely, the problems associated with the manufacture of composite materials that are highly breathable, water permeable (especially in all three directions) light in weight, conformable to the human body, and able to withstand repeated blows without mechanically breaking down and/or bottoming out). Thus, the DVD reference is clearly non-analogous art to the claimed invention and, therefore, should not be considered at all when evaluating the patentability of the claimed invention.

However, even if the DVD reference is analogous art to the claimed invention, the teachings thereof are incompatible with the teachings of the Kasahara et al. reference and, therefore, cannot be properly combined therewith. As mentioned above, the Kasahara et al. reference discloses a porous foam plate that is used to stabilize or support the stalk of a plant grown by a hydroponic method. The DVD reference relates to the in-line surface treatment of bulk plastic articles, specifically the use of a plasma surface treatment to increase the surface tension, dyne level, and wettability of an article to enhance bonding of coatings, inks, or other adhesives. The Examiner stated that the motivation for combining the teachings of the Kasahara et al. reference and the DVD reference was “to provide an increase in the surface energy of the beads, thereby enhancing adhesive strength between the adhesive and the beads.” However, there is no disclosure whatsoever contained in the Kasahara et al. reference that suggests that the adhesive strength between the beads that form the porous foam plate needs to be increased, as suggested by the Examiner. Rather, it is just as likely that an increase in the adhesive strength between the beads that form the Kasahara et al. porous foam plate would result in a structure that is unsuitable for use in the disclosed hydroponic method. Certainly, the DVD reference provides no motivation whatsoever for applying the disclosed plasma treatment to a porous foam plate that is used to stabilize or support the stalk of a plant grown by a hydroponic method. Absent any reasonable suggestion or motivation in the references, the combination of the teachings proposed by the Examiner must fail.

Lastly, even if the teachings of the Kasahara et al. reference and the DVD reference are combinable, the resultant structure is quite different from the claimed invention. As mentioned above, the Kasahara et al. reference discloses a porous foam plate. The DVD reference relates to a process for the surface treatment of an article. A proper combination of the two references would result in the porous foam plate of the Kasahara et al. reference being subjected to the surface treatment disclosed in the DVD reference. Thus, the combined teachings of the two references does not result in the claimed structure, wherein the plurality of beads having electrical excitation zone-treated surfaces. Rather, the combined teachings of the two references results in a

porous foam plate having only an outer surface that is surface treated. Thus, even if the teachings of the Kasahara et al. reference and the DVD reference are combined, the claimed invention is not achieved. Accordingly, the rejections are untenable and must be withdrawn.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Richard S. MacMillan", written over a horizontal line.

Richard S. MacMillan  
Reg. No. 30,085

MacMillan, Sobanski & Todd, LLC  
One Maritime Plaza, Fifth Floor  
720 Water Street  
Toledo, Ohio 43604  
(419) 255-5900